

## **APPENDIX A**

### ***Common Best Management Practices Implemented In Utah***

Best management practices (BMP's) may be defined as methods, measures, or combinations of measures that are determined by an agency after problem assessment to meet its nonpoint source (NPS) pollution control needs. They include, but are not limited to, structural and nonstructural controls and operation and maintenance procedures.

The diffuse nature of nonpoint source pollution complicates the issue of control. Apparent solutions are not necessarily effective, and the implementation of a control measure at one point may create a more serious problem at another. BMP's must be flexible and suited to the specific location at which they are to be implemented. Each site has different characteristics of soil, slope, vegetative cover, precipitation, and other variables that must be considered before control practices may be prescribed.

There is no practical way to achieve 100% control of NPS pollution problems. The goal is to restore beneficial uses and achieve a cost-effective control level. In many cases, the cost to control NPS pollution may exceed monetary benefits of the project. However, a large measure of control may often be gained at small cost by using commonsense solutions. In simpler terms, the goal is not to implement a set of BMP's across the state, but rather to effect improvements in water quality. Measures that accomplish this goal in a cost-effective manner should be emphasized.

Best management practices cannot be viewed in isolation. They must be seen as a management strategy, an approach, or a system. Seldom is one practice sufficient to resolve a nonpoint source problem. A combination of practices is usually required, along with a management philosophy of commitment to reducing nonpoint pollution. It is rarely sufficient to install a practice and forget it. BMP's and systems require an ongoing maintenance and management effort that must be recognized at the outset.

The best management practices are intended for use on state, federal, and private lands throughout Utah. These practices are not intended to supercede the judgment of public land managers. Public land management agencies will be expected to continue to operate through the established procedures in the Memoranda of Agreement with the State Planning Coordinator and State Department of Environmental Quality. When other federal BMPs, for example those used by the Forest Service or BLM, fall below minimum standards established by the NRCS's Field Office Technical Guide, the NRCS's standards shall take precedence.

Many BMP's are already in use by agencies and legal subdivisions of the State of Utah. The practices of those agencies will be considered adequate unless they are shown to be deficient. These practices will be evaluated by the Division of Water Quality.

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The following agencies have developed formal best management practices (BMP) to resolve NPS issues. These BMP's have been determined to meet the minimum acceptable standards as provided in the NRCS's Field Office Technical Guide.

1. USDA-Forest Service Forest Service Handbook 2509.22 Soil and Water Conservation Practices Handbook
2. USDA-Natural Resources Conservation Service Field Office Technical Guide
3. Utah Department of Transportation Manual of Instruction, Part 4, Roadway Drainage
4. U.S. Army Corps of Engineers (Utah Division of Water Rights) State of Utah, Administrative Rules for Stream Channel Alterations
5. Local Governments Uniform Building Code, Chapter 70

These agencies also have formal working agreements with the state which provide for periodic review of BMPs. BMPs will be reviewed for adequacy as deemed necessary by agency staff. On-site inspection and monitoring for water quality objectives will be included in the review for selected BMPs. Updates to agency manuals shall become a part of this plan. Modifications to BMPs may also become a part of this plan after recommendation of the Task Force and an opportunity for public review. Additional BMPs may be added by the same process. Special practices may also be included for use in specific areas after review by the appropriate Task Force and the public.

NPS pollution control can best be addressed through a locally led watershed planning process. This process is based on the premise that decision makers will make and implement acceptable resource use and treatment decisions if they understand the causes of the problems and the effects of their decisions.

The planning process is designed for skilled technicians to assist decision makers determine how to improve and maintain soil, water, animal, plant, and air (SWAPA) resources. It provides a consistent and orderly method for determining objectives and reaching and implementing decisions. The programs can be used for either planning and/or implementation.

Nonpoint source water quality contaminants should be considered in the planning process and coordinated with all SWAPA resources as an integral part of the resource management system (RMS). An RMS is a combination of conservation management practice that, when installed, will protect the resource base. Acceptable standards for SWAPA components must be applied for an RMS to occur.

NPS pollution control cannot generally be obtained by one conservation practice. A combination of management, vegetative, or structural practices is usually required to achieve protection of SWAPA resources. BMPs become a system that may be all or a portion of a complete RMS. The RMS identifies problems and treatments during the planning process.

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Special consideration must be given to groundwater before implementing best management practices. Many BMPs are designed to reduce impacts on surface waters by increasing infiltration into the soil. This increased infiltration may have an undetermined impact on groundwater. Chemicals and nutrients may be carried through the soil into the parent material and geologic layers below, or percolating waters may contact a geologic formation, leading to quality degradation. Degradation is readily apparent in many areas of Utah where groundwater contacts saline layers and water quality is reduced. In other areas, fertilizers or hazardous chemicals may be transported to aquifers.

The potential impacts on groundwater are largely unquantified, and important groundwater resources have not yet been fully identified. It is incumbent upon those who prescribe BMP's that groundwater resources are given due consideration. The following steps should be followed in determining the mix of BMP's to ensure that groundwater resources have been adequately considered:

- a. Determine if the BMP or set of BMP's has the potential to impact groundwater resources.
- a. Determine the potential for BMP's to impact a locally or regionally important aquifer. (Important aquifers should be identified in the State Groundwater Plan or consult local planning agencies).
- b. If the BMP's have the potential to impact groundwater quality and an important aquifer exists in the vicinity, then BMP's should be modified to the greatest extent practicable to prevent groundwater contamination. More detailed investigation may be required and the value of the surface versus ground-water resources should be considered before making adjustments to practices that provide a "best fit" in the local circumstance. Additional technical assistance from participating agencies may also be necessary.

BMP's fall into three categories for implementation: 1) Those the state intends to encourage, 2) those which will be assisted through financial cost share or loans and 3) those which will be enforced through regulations. Any of the BMPs referenced in this plan could be enforced on an individual case by case basis. While it is not the intent of the state to develop new regulations, communities and counties in the state will be encouraged to adopt regulations to control urban construction and development activities, including road construction. Agriculture and grazing practices may be eligible for cost-sharing through USDA conservation programs or the Agriculture Resource Development Loan Program. Technical assistance and education will be provided to the maximum extent feasible on practices for all nonpoint sources.

The following section lists the BMP's available for NPS control in Utah. They are described in general terms, and then specific practices are included by reference. The physical location of the reference material is also included.

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## Resource Management Systems Format

### *Definition:*

This section describes the general control category and application of the best management practice. A suitable combination of Best Management Practices.

### *Purpose:*

This section describes the goal and desired results of implementing the Resource Management System.

### *Conditions Where Practice Applied:*

Defines the physical constraints on practice application.

### *Specification Guides:*

BMP specification guides which may be needed to develop and implement an appropriate Resource Management System (RMS).

### *Reference:*

Includes technical references for detail on specific practices. These references should be used in determining site specific applications. (The physical location of the reference is also included in parentheses.) References may be obtained by contacting the agency cited or by contacting the Utah Department of Agriculture & Food at 538-7177, 350 N. Redwood Road, Salt Lake City, Utah, 84116.

<u>STATE OFFICE</u> 125 South State Street Salt Lake City, UT 84138-1100 (801) 524-4550 (801) 524-4403 fax	<u>Ogden Area Office</u> 2871 South Commerce Way Ogden, UT 84401 (801) 629-0580 (801) 629-0574 fax	<u>Coalville Field Office</u> Dearden Building 30 Main Street PO Box 526 Coalville, UT 84017 (435) 336-5853 (435) 336-2132 fax
<u>North Logan Field Office</u> 1860 North 100 East Logan, UT 84341-1784 (435) 753-5616 (435) 755-2117 fax	<u>Ogden Field Office</u> 2871 South Commerce Way Ogden, UT 84401 (801) 629-0580 (801) 629-0574 fax	<u>Provo Field Office</u> 302 East 1860 South Provo, UT 84606-7317 (801) 377-5580 (801) 356-1237 fax
<u>Randolph Field Office</u> 195 North Main PO Box 97 Randolph, UT 84064 (435) 793-3905 (435) 793-2745 fax	<u>Tooele Field Office</u> 185 North Main Street Tooele, UT 84074 (435) 882-2276 (435) 882-0429 fax	<u>Tremonton Field Office</u> 85 South First East Tremonton, UT 84337 (435) 257-5403 (435) 257-1930 fax
<u>Richfield Area Office</u> 340 North 600 East Richfield, UT 84701 (435) 896-6441 (435) 896-9339 fax	<u>Beaver Field Office</u> 620 North Main Street PO Box 640 Beaver, UT 84713-0640 (435) 438-5092 (435) 438-2168 fax	<u>Cedar City Field Office</u> Blackrock Village 2390 West Highway 56 Suite 14 Cedar City, UT 84720 (435) 586-2429 (435) 586-0649 fax

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<u>Fillmore Field Office</u> 65 West 100 North PO Box 506 Fillmore, UT 84631 (435) 743-6655 (435) 743-5117 fax	<u>Manti Field Office</u> 50 South Main Suite #3 Manti, UT 84642 (435) 835-4111 (435) 835-4113 fax	<u>Nephi Field Office</u> 635 North Main Nephi, UT 84648 (435) 623-0342 (435) 623-2368 fax
<u>Panguitch Field Office</u> Riley & Carter Office Building 225 East Center Street PO Box 277 Panguitch, UT 84759-0362 (435) 676-8021 (435) 676-8432 fax	<u>Richfield Field Office</u> 340 North 600 East Richfield, UT 84701 (435) 896-6441 (435) 896-9339 fax	<u>Price Area Office</u> 540 West Price River Drive Price UT 84501 (435) 637-0041 (435) 637-3146 fax
<u>Aneth Service Center</u> East Highway 262 Aneth, UT 84534 (435) 651-3493	<u>Castle Dale Field Office</u> 1090 North Des-Bee-Dove Rd. PO Box 758 Castle Dale UT 84513 (435) 381-2300 (435) 381-5696 fax	<u>Monticello Field Office</u> 32 South 1st East PO Box 639 Monticello UT 84535 (435) 587-2481 (435) 587-2104 fax
<u>Price Field Office</u> 540 West Price River Drive Price UT 84501 (435) 637-0041 (435) 637-3146 fax	<u>Roosevelt Field Office</u> Nile Chapman Building 240 West Highway 40, 333-4 Roosevelt UT 84066 (435) 722-4621 (435) 722-9065 fax	<u>Vernal Field Office</u> 80 North 500 West Vernal UT 84078 (435) 789-1338 (435) 789-4160 fax

## A. Agriculture and Grazing - Best Management Practices

### Grazing Management on Rangeland

#### *Definition:*

Grazing at an intensity that will maintain enough cover to protect the soil and maintain or improve the quantity and quality of desirable vegetation.

#### *Purpose:*

To: (1) increase the vigor and reproduction of key plants; (2) accumulate litter and mulch necessary to reduce erosion and sedimentation and improve water quality; (3) improve or maintain the condition of vegetation; (4) increase forage production; (5) maintain natural beauty; (6) reduce the hazard of wildfire; and (7) improve wildlife habitats.

#### *Conditions Where Practice Applies:*

On all rangeland, grazeable woodland, and grazed wildlife land.

#### *Specification Guides:*

Specification Guides are available in NRCS Field Office Technical Guides.

Management specification includes but is not limited to:

Access Roads 560  
Firebreak 394  
Fence 382

Prescribed Grazing 556 & 528A  
Proper Woodland Grazing 530  
Spring Development 574

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Heavy Use Area Protection 561  
Pipeline 516

Trough's or Tank 614  
Use Exclusion 412

Note: Numeric codes following a practice coincide with NRCS standards and specification numbers.

## ***Reference:***

- 1) Technical Report No. 15, Best Management Practices for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1977 Provo, Utah (Utah Department of Agriculture & Food, Utah Department of Environmental Quality).
- 2) Natural Resources Conservation Service (NRCS), Field Office Technical Guide.

## **B. Soil Stabilization on Rangelands**

### ***Definition:***

Stabilizing soils on rangelands to reduce soil erosion, control surface runoff, and minimize groundwater contamination through vegetative management and structural practices.

### ***Purpose:***

To: (1) prevent excessive soil and water loss and improve water quality; (2) produce more forage for grazing or browsing animals on rangeland or land converted to range from other uses; and (3) improve the visual quality of grazing land.

### ***Conditions Where Practice Applies:***

On rangeland, grazable woodland and grazable wildlife land.

### ***Specification Guides:***

Specification guides are available in NRCS Field Office Technical Guides.

Management specification includes but is not limited to:

Animal Trails & Walkways 575  
Brush Management 314  
Critical Area Planting 342  
Diversion 362  
382 Spring Development 574  
Stream Channel Stabilization 584  
Streambank Protection 580

Prescribed Burning 338  
Prescribed Grazing 528  
Range Planting 550  
Seeding Stock Trail and Walkway Fence  
Filter Strip 393  
Grazing Land Mechanical Treatment 548  
Grade Stabilization Structures 410

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Water & Sediment Containment Basins 638 Heavy Use Area Protection 561  
Waterspreading 64 Wildlife Water Facility 648

Note: Numeric codes following a practice coincide with SCS standards specification numbers.

## ***Reference:***

- 1) Natural Resources Conservation Service Field Office Technical Guide.
- 2) Technical Report 15, Best Management Practices for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1977 Provo, Utah (Utah Department of Agriculture & Food, Utah Department of Environmental Quality).

## **C. Riparian Area Management**

### ***Definition:***

Managing the riparian zone to minimize damage to streambanks, ground water recharge areas, shoreline and surface water quality from animal wastes, stomping and over-grazing.

### ***Purpose:***

To prevent surface and groundwater pollution from animal wastes, prevent excessive streambank and stream channel erosion, improve water quality, and maintain wildlife and fisheries habitat.

### ***Conditions Where Practice Applies:***

On all rangeland, pastureland and wildlife upland.

### ***Specification Guides:***

Specification Guides are available in NRCS Field Office Technical Guides.

Management Specification Includes but Is Not Limited To:

Fence 382  
Filter Strip 393  
Nutrient Management 590  
Pipeline 516  
Prescribed Grazing Use 528  
Range Planting 550  
Restoration & Mgt of Declining Habitat 643  
Riparian Herbaceous Cover 390

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Riparian Forest Buffer 391A  
Tree/Shrub Establishment 612  
Trough or Tank 614  
Streambank Protection 580  
Stream Channel Stabilization 584  
Use Exclusion 472

Note: Numeric code following a practice coincides with NRCS standards specification numbers.

## ***Reference:***

- 1) Technical Report No. 15, Best Management Practices for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1977 Provo, Utah (Utah Department of Agriculture & Food, Utah Department of Environmental Quality).
- 2) Natural Resources Conservation Service (NRCS), Field Office Technical Guide.

## **D. Riparian Area Stabilization**

### ***Definition:***

Using vegetation or structures to stabilize and protect banks of streams or excavated channels against scour and erosion.

### ***Purpose:***

This standard applies to measures to stabilize and protect the aggradation or degradation in a stream channel and stream bank for one or more of the following purposes: (1) to prevent the loss of land or damage to utilities, roads, buildings, or other facilities adjacent to the channel banks; (2) to control channel meander that would adversely affect downstream facilities; (3) to reduce sediment loads causing downstream damages and pollution and; (4) to improve the stream for recreation or as a habitat for fish or wildlife.

### ***Conditions Where Practice Applies:***

This practice applies to natural or excavated channels undergoing damaging aggradation or degradation.

### ***Specification Guide:***

Management specification includes but is not limited to:

Channel Vegetation 322	Riparian Herbaceous Cover 390
Ditch and Canal Lining 428	Sediment Basins 350
Floodwater Diversion	Streambank Protection 580



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and Floodway 400,404  
Grassed Waterways 412  
Grade Stabilization Structure 410  
Maintenance of Flow for Channel Stability

Stream Channel Stabilization 584  
Wildlife Watering Facility 648

Note: Numeric code following practice coincides with NRCS standards and specification number.

## ***Reference:***

- 1) Natural Resources Conservation Service Field Office Technical Guide, Codes 322, 400, 404, 410, 412, 428, 580 and 584 (NRCS Field Office)
- 2) State of Utah Administrative Rules for Stream Channel Alterations (Utah State Engineer, Division of Water Rights).

## **E. Cropland Management**

### ***Definition:***

Developing and maintaining residues or establishing temporary or a permanent cover crop to reduce runoff and increase the infiltration of water.

### ***Purpose:***

To improve or maintain good physical, chemical, and biological conditions of the soil; reduce erosion; improve water use efficiency and water quality; improve wildlife habitats; and/or break reproduction cycles of plant pests.

### ***Conditions Where Practice Applies:***

On all cropland or other lands where agricultural crops are grown.

### ***Specifications Guides:***

Specification Guides are available in NRCS Field Office Technical Guide.

The management specification includes but is not limited to:

Chiseling and Subsoiling 324  
Conservation Cover 327  
Conservation Crop Rotation 328  
Cover and Green Manure Crop 340  
Critical Area Planting 342  
Filter Strip 393  
Grassed Waterway 412  
Heavy Use Area Protection 561

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Irrigation Water Management 499  
Irrigation System 442, 443, 444  
Mulching 484  
Nutrient Management 590  
Pasture and Hayland Planting 512  
Pest Management 595A  
Pipeline 430  
Residue Management Use 329A, 329B  
Strip Cropping Contour 585  
Strip Cropping Field 586

Note: Numeric code following a practice coincides with NRCS standards specification numbers.

## ***Reference:***

- 1) Natural Resources Conservation Service Field Office Technical Guide.

## **F. Soil Stabilization in Croplands**

### ***Definition:***

Stabilizing soils on croplands to reduce soil erosion, control surface runoff, and minimize groundwater contamination through vegetative management and structural practices.

### ***Purpose:***

To prevent sediment and other pollutants from entering the surface and subsurface waters.

### ***Conditions Where Practice applies:***

On all the agricultural lands where the slope grade and length are significant because of soil type and local precipitation conditions.

### ***Specification Guides:***

Specification Guides are available in NRCS Field Office Technical Guide.

Management specification for this practice includes but is not limited to:

Conservation Cover 327  
Cover and Green Manure Crop 340  
Contour Farming 330  
Critical Area Planting 342  
Filter Strip 393  
Field Border 386

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Grassed Water Way 412  
Nutrient Management 590  
Pest Management 595A  
Residue Management 329A, 329B  
Terraces 600  
Windbreak/Shelter belt 380

Note: Numeric code following a practice coincides with NRCS standards specification numbers.

## ***Reference:***

- 1) Natural Resources Conservation Service Field Office Technical Guide.
- 2) Technical Report 15, Best Management Practices for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1977 Provo, Utah (Utah Department of Agriculture & Food, Utah Department of Environmental Quality).

## **G. Drainage Modification in Croplands**

### ***Definition:***

Subsurface diversion and other similar practices (interception drains) to prevent the movement of deep percolated waters from cropland to groundwater.

### ***Purpose:***

To prevent groundwater pollution caused by the deep percolated waters.

### ***Conditions Where Practice Applies:***

On fields where the infiltration rate is very high (sandy soils) or the water table level is close to the surface and there is a likelihood of groundwater contamination from cultural practices. (This practice is intended for use on existing cropland and not for the purpose of bringing new land into production.)

### ***Specification Guides:***

Specification Guides are available in NRCS Field Office Technical Guides.

Management specification for this practice includes but is not limited to:

Bedding 310  
Diversion 362  
Mole Drain 482  
Pumped Well Drain 532

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Subsurface Drain 606  
Surface drainage 607,608  
Vertical Drain 630  
Water Table Control 641

Note: Numeric code following a practice coincides with NRCS standards specification numbers.

## ***Reference:***

- 1) Natural Resources Conservation Service Field Office Technical Guide.

## **H. Agricultural Waste Management**

### ***Definition:***

Minimizing the transport of nutrients from confined animal feeding operations to surface and groundwater through vegetative and structural practices.

### ***Purpose:***

To prevent surface and subsurface water pollution from animal wastes.

### ***Conditions Where Practice Applies:***

On feed lots, dairies, hog farms, poultry farms, and other concentrated animal feedlots.

### ***Specification Guide:***

Management specification includes but is not limited to:

Composting Facility 317  
Filter Strips 393  
Nutrient Management 590  
Riparian Forest Buffer 391A  
Roof Management System 570  
Roof Runoff Management 558  
Use Exclusion 472  
Waste Management Systems 312  
Waste Storage Pond 425  
Waste Storage Facility 313  
Waste Treatment Lagoon 359  
Waste Utilization 633

Note: Numeric code following a practice coincides with NRCS standard and specification number.

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## ***Reference:***

- 1) Technical Report No. 15, Best Management Practices for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1977  
Provo, Utah (Utah Department of Agriculture & Food, Utah Department of Environmental
- 2) Natural Resources Conservation Service Field Office Technical Guide, Codes.

## **I. Agricultural Pesticide Management**

### ***Definition:***

Managing pesticide applications to minimize the transport of chemicals and chemical residue to surface and groundwater through the utilization of alternative pesticides, alternative crops, proper timing, application rates, of pesticides. The term pesticides refers to all insecticides, herbicides, and fungicides.

### ***Purpose:***

To reduce pesticide loss to the surface and ground water.

### ***Condition Where Practice Applies:***

On all cropland or on other lands where pesticides are applied (e.g., rangeland).

### ***Specification Guide:***

Pest control actions include monitoring pest increases, the judicious use of a pesticide, or effective communication that no action is necessary.

Management specification includes but is not limited to:

Soil Testing  
Planting Time Optimization  
Use of Alternative Pesticides  
Timing of Applications  
Application Rate Adjustment  
Timing of Field Tillage Operation  
Use of Alternative Methods of Pest Control  
Use of Insect and Disease- Resistant Crop Varieties  
Pest Management 595A

### ***Reference:***

- 1) Planning Guide for Evaluating Agricultural Nonpoint Source Water Quality Controls. USEPA, 1982, Athens, GA. (Utah Department of Agriculture & Food)

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- 2) Technical Report 15, Best Management Practice for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1977 Provo, Utah (Utah Department of Agriculture & Food, Utah Department of Environmental Quality)
- 3) Natural Resources Conservation Service Field Office Technical Guide.

## **J. Agricultural Fertilizer Management**

### ***Definition:***

Managing fertilizer and manure applications to minimize the transport of nutrients to surface and groundwater through the utilization of proper timing and application rates.

### ***Purpose:***

To reduce fertilizer and manure loss to the surface and groundwater.

### ***Conditions Where Practice Applies:***

On all cropland or other lands where fertilizers or manure are applied.

### ***Specification Guides:***

Management specification includes but is not limited to:

Application Timing  
Composting Facility 317  
Nutrient Management 590  
Optimizing the Planting Time  
Proper Application Rates  
Soil Testing  
Tillage Operation Timing  
Use of Adapted Fertilizers  
Waste Management System 312  
Waste Storage Facility 313  
Waste Treatment Lagoon 359  
Waste Utilization 633

### ***Reference:***

- 1) Planning Guide for Evaluating Agricultural Nonpoint Source Water Quality Controls. USEPA, 1982, Athens, GA. (Utah Department of Agriculture & Food)

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- 2) Technical Report No. 15, Best Management Practices for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1077 Provo, Utah (Utah Department of Agriculture & Food, Utah Department of Environmental Quality)
- 3) Natural Resources Conservation Service Field Office Technical Guide.

### **K. Urban Best Management Practices**

#### Wetland Management in Urban Areas

##### ***Definition:***

Managing wetlands to control and trap pollutants and minimize the potential for transport of pollutants to surface and groundwater.

##### ***Purpose:***

To control pollution from urban stormwater runoff through the construction and stabilization of wetland storm water basins

##### ***Conditions Where Practice Applies:***

On any residential or nonresidential area where a wetland storm water basin is needed.

##### ***Specification Guides:***

Management specification includes but is not limited to:

Streambank and Shoreline Protection 580  
Structures for Water Control 587  
Water Table Control 641  
Wetland Creation 658  
Wetland Enhancement 659  
Wetland Restoration 657  
Wetland Wildlife Habitat Management 644

##### ***Reference:***

- 1) Maryland Department of Natural Resource, "Guide for Constructing Wetland Storm-Water Basins," March 1987, (Utah Department of Agriculture & Food).
- 2) State of Utah Administrative Rules for Stream Channel Alteration (Utah State Engineer, Division of Water Rights).

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- 3) “Guiding Principles for Constructed Treatment Wetlands: Providing Water Quality and Wildlife Habitat” (U.S. Fish and Wildlife Service, Utah Field Office, Salt Lake City)

## **L. Water Quality Protection in Urban Areas**

### ***Definition:***

Minimizing the transport of sediments, organic materials, pathogenic organisms, chemicals, and toxins to surface and groundwater from urban stormwater runoff through management and structural practices.

### ***Purpose:***

To protect surface and subsurface water quality from contamination carried by storm water.

### ***Conditions Where Practice Applies:***

In all urbanized areas.

### ***Specification Guide:***

Management specification includes but is not limited to:

Altering Time of Runoff	Street Paving
Concentration Community Pride	Sewerage System
Garbage and Trash Collection	Storm Water Collection System
Good Housekeeping Practices	Storage Basin
Grade Stabilization Structure 410	Street Cleaning
Grassed Waterways 412	Street De-icing
Heavy Use Area Protection 561	Tree Planting 612
Infiltration Fields	Water and Sediment Containment Basin 638
Local Ordinance	Water Spreading 640
Lined Waterway or Outlet 468	
Mulching 484	
Pet Ordinances	
Runoff Management System 570	
Sediment Basin 350	
Septic Tanks	
Stream Banks	
Streambank and Shoreline Protection 580	

### ***Reference:***

- 1) Technical Report No. 15, Best Management Practices for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1977



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- Provo, Utah (Utah Department of Agriculture & Food and Utah Department of Environmental Quality).
- 2) Maryland NRCS/WRA for Soil Erosion and Sediment Control, April 1983 (Utah Department of Agriculture & Food).
  - 3) Maryland NRCS/WRA for Infiltration, February 1984 .
  - 4) Maryland NRCS/WRA for Soil Erosion and Sediment Control, April 1983.
  - 5) Design and Construction of Urban Stormwater Management Systems, Water Environment Federation and American Society of Civil Engineers, 1992.
  - 6) Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs, Metropolitan Washington Council of Governments, 1987.

## **M. Irrigation Water Management**

### ***Definition:***

Determining and controlling the rate, amount, and timing of irrigation water in a planned and efficient manner.

### ***Purpose:***

To effectively use available irrigation water supply in managing and controlling the moisture environment of crops to promote the desired crop response, to minimize soil erosion and an undesirable migration of chemicals (pesticides, nutrients, and salts), to control undesirable water loss, and to protect water quality.

### ***Conditions Where Practice Applies:***

This practice is suited to all areas that are suitable for irrigation and that have water supply of suitable quality and quantity.

### ***Specification Guides:***

The management specification includes but is not limited to:

Application Rate  
Irrigation Scheduling  
Tailwater Control  
Recycling Irrigation Runoff  
Salinity Control  
Drainage Water Re-use  
Irrigation and Sediment Removal  
Optimal integration of water and chemical application  
Site-specific guidelines

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## ***Reference:***

- 1) Natural Resources Conservation Service, Field Office Technical Guide, Code 449, 570, and 573 (NRCS Field Office).
- 2) Planning Guide for Evaluating Agricultural Nonpoint Source Water Quality Controls. USEPA, 1982, Athens, GA. (Utah Department of Agriculture & Food)
- 3) Technical Report No. 15, Best Management Practices for Nonpoint Source Water Pollution Control in Utah, Mountainland Association of Governments, 1977 Provo, Utah (Utah Department of Agriculture & Food, Utah Department of Environmental Quality).

## **N. Silviculture-Forest Water Quality Guidelines**

These guidelines are described in Appendix H of the Nonpoint Source Management Plan. These guidelines are available by contacting the Division of Forestry, Fire and State Lands or the Division of Water Quality.

## **O. Best Management Practices for Hydrologic Modification**

These BMPs are described in the document entitled “State of Utah Nonpoint Source Management Plan for Hydrologic Modification,” and is included by reference as a part of this NPS Plan revision (See Appendix G). This document is available by contacting the Division of Water Quality.

## **P. UDOT Transportation Facilities - Best Management Practices**

### ***Definition:***

Incorporate Best Management Practices (BMPs) to control erosion, sediment and other pollutants.

### ***Purpose:***

To minimize the discharge of pollutants off the project site to downstream receiving waters and to comply with state and federal environmental regulations.

### ***Conditions Where Practice Applies:***

Projects where sensitive environmental resources are adjacent to the project site and projects that disturb one or more acres of ground surface.

### ***Best Management Practices:***

Check Dam  
Drop Inlet Barrier

# UTAH NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

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Fiber Roll  
Flexible Channel Liner  
Gutter Inlet Barrier  
Pipe Inlet Barrier  
Top Soil and Seeding  
Sediment Trap  
Silt Fence  
Slope Drain  
Stabilized Construction Entrance  
Steep Slope Erosion Control  
Straw Bale Barrier  
Temporary Berm  
Temporary Environmental Fence  
Wood Fiber Mulch

***Reference:***

- 1) UDOT Standard Specification 01571 “Environmental Controls”
- 2) UDOT EN Series Standard Drawings (EN1-EN7)
- 3) UDOT Erosion and Sediment Control Field Guide
- 4) UDOT Storm Water Pollution Prevention Plan
- 5) Utah Storm Water General Permit for Construction Activities: Permit No. UTR300000